AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-9. (Canceled)

10. (Currently Amended) A method of determining the location of a receiver in receipt of at least three positioning signals, comprising:

identifying a reference location with the at least three positioning signals;

determining a height value associated with the reference location;

deriving at least three simultaneous equations associated with the at least three positioning signals;

solving the at least three simultaneous equations with the height value that results in a position and a corresponding horizontal error ellipse that is centered at the position and has major and minor axes extending in latitude and longitude directions through the position;

fitting a two-dimensional polynomial to the corresponding horizontal error ellipse, the two dimensions corresponding to the latitude and longitude directions; and

solving the at least three simultaneous equations and the two-dimensional polynomial that results in an altitude of the satellite positioning receiver.

11-14. (Canceled)

15. (Currently Amended) The method of claim 10, further including:

acquiring a second height ~~of the receiver~~ value using variables from the two dimensional polynomial; and

comparing ~~the~~ a difference between the second height value and the altitude to a predetermined threshold.

16. (Previously Presented) The method of claim 15, wherein the predetermined threshold is 100 meters.

17. (Previously Presented) The method of claim 10, wherein the receiver is located in a server.

18. (Currently Amended) A satellite positioning receiver apparatus in receipt of at least three positioning signals, comprising:

means for identifying a reference location with. the at least three positioning signals;

means for determining a height value associated with the reference location;

means for deriving at least three simultaneous equations associated with the at least three positioning signals;

means for solving the at least three simultaneous equations with the height value that results in a position and a corresponding horizontal error ellipse that is centered at the position and has major and minor axes extending in latitude and longitude directions through the position;

means for fitting a two-dimensional polynomial to the corresponding horizontal error ellipse, the two dimensions corresponding to the latitude and longitude directions; and

means for solving the at least three simultaneous equations and the two-dimensional polynomial that results in an altitude of the satellite positioning receiver.

19-22. (Canceled)

23. (Currently Amended) The apparatus of claim 18, further including:

means for acquiring a second height ~~of the satellite positioning receiver~~ value using variables from the two dimensional polynomial; and

means for comparing ~~the~~ a difference between the second height ~~of the satellite positioning receiver~~ value and the altitude to a predetermined threshold.

24. (Original) The apparatus of claim 23, where the predetermined threshold is 100 meters.

25. (Currently Amended) A machine-implemented method for determining the location of a satellite positioning receiver in receipt of at least three positioning signals, the method comprising:

identifying a reference location upon receipt of at least three positioning signals;

determining a height value associated with the reference location;

deriving at least three simultaneous equations associated with the at least three positioning signals;

solving the at least three simultaneous equations with[[.]] the height value that results in a position and a corresponding horizontal error ellipse that is centered at the position and has major and minor axes extending in latitude and longitude directions through the position;

fitting a two-dimensional polynomial to the corresponding horizontal error ellipse, the two dimensions corresponding to the latitude and longitude directions; and

solving the at least three simultaneous equations and the two-dimensional polynomial that results in an altitude of the satellite positioning receiver.

26-29. (Canceled)

30. (Currently Amended) The machine-implemented method of claim 25, further including:

acquiring a second height ~~of the satellite positioning receiver~~ value using variables from the two-dimensional polynomial; and

comparing ~~the~~ a difference between the second height ~~of the satellite positioning receiver~~ value and the altitude to a predetermined threshold.

31. (Previously Presented) The method being implemented by a processor of claim 30, where the predetermined threshold is 100 meters.

32-33. (Canceled)

34. (Currently Amended) A server, comprising

a transceiver that receives a plurality of satellite code phases;

a memory with digital terrain elevation data:

a controller that processes the plurality of code phases and accesses the digital terrain data in memory with an initial height value to determine a location of the receiver indicated by the plurality of satellite codes and the digital terrain data;

a message containing the location data sent from the transceiver;

a horizontal error ellipse parameter ~~in an altitude equation that forms~~ corresponding to an error ellipse having a major axis and a minor axis that ~~corresponds to an altitude error about the initial height value~~ extend in longitude and latitude directions and are centered at the location;

a plurality of points along the major axis and the minor axis that form a grid of grid points, each separated from each other by a predetermined distance in longitude and latitude, ~~that~~ the controller ~~accesses~~ accessing the digital terrain elevation data in memory at positions in longitude and latitude corresponding to the grid points; and

a two-dimensional polynomial surface fit over the grid points, the two dimensions corresponding to the latitude and longitude directions.

35-44. (Canceled)